VII. Summary

The purpose of this study was to evaluate a sampling of DoD CRADAs to assess the benefits that the DoD is reaping from participating in these agreements. Legislation has focused on the transfer of technology from the federal laboratories to the private sector, however, value has also been realized by the federal partners involved.

The DoD S&T management principles, as outlined in the DoD, DDR&E Science and Technology Strategy, guide the laboratories in meeting the needs of the DoD mission. In the future, linking the CRADAs to the management principles, can also serve as a way to assess the value they are providing to the DoD mission.

The intent of Congress has remained essentially the same for many years: leveraging federal R&D dollars for the greater good of the national economy. The expectation has been that more partnerships between industry and Federal labs would improve U.S. competitiveness, help small businesses, and create new jobs and products for the nation's economy. This expectation needs to be managed, for although some believe that CRADAs should lead to commercial products, in actuality this appears to be the exception rather than the rule.

The CRADA is a technology transfer mechanism which allows flexibility in R&D and protects the intellectual property of parties. CRADAs typically entail knowledge-share opportunities that involve small advances in research that lead to product or process improvements, advance research to points that would have taken longer to achieve independently, or allow an opportunity to perform research that would not have otherwise occurred due to restricted resources.

In times of constrained R&D budgets, whether it be a small business, a large business or a DoD laboratory, both parties and the private sector can benefit from leveraging expertise that lies outside of their own labs in areas of mutual interest. Drawing upon external expertise can provide the means to overcome obstacles that arise along the path to new discoveries or even determine that the path being pursued is leading to a dead-end and another needs to be followed. New knowledge can lead to advancing the research to the next level in the development cycle or can spawn new ideas leading to new R&D programs altogether. The following is a summary of the findings resulting from this study.

Generalized Findings

- CRADAs are seen by many Labs as mission extenders
- CRADAs can provide a means for industry to talk openly with Government
- CRADAs are a means of advancing research to points that would otherwise have taken longer to achieve independently
- CRADAs can provide access to Government/Military facilities that are not otherwise commercially available
- CRADAs can result in new, improved, or more cost effective products/processes
- CRADAs can eliminate interpersonal barriers that can arise in a contractual relationship
- CRADAs are successful when objectives are clearly laid out
- CRADAs can advance research for both partners sometimes leading to new programs/contracts
- CRADAs that result in follow-on CRADAs between organizations is an indicator of progress

In supporting the belief that successful CRADAs should lead to commercial products, many of the CRADAs evaluated in this study resulted in products or product improvements. Some of the products are either still in development or pending commercialization, however, they are at stages where they are considered to be viable products. In some cases, the use of DoD facilities or test sites provided a means for products to be further refined as a result of the data gathered by the industry partner.

This evaluation also showed that by pooling resources through the use of a CRADA, DoD as well as the industry partner can stretch their limited R&D dollars resulting in larger research efforts than either party could fund independently. The values for work-in-kind and cash-in contributed by the industry partners is an indication of the value industry associates with partnering with the Government via the CRADA. The actual dollars that are coming into the laboratories cover such costs as overhead, materials, third party contracts, and travel expenses.

During the course of the study, some interesting insights were discovered. In most cases, the Office of Research and Technology Assistance, ORTA, is not the first point of entry for an industrial partner wishing to do business with the DoD. CRADAs are typically initiated through working relationships that have evolved between scientists over the years through research conferences, consortia, contracts, etc. In some cases the industrial partner or government scientist initiates a literature search to find those people working in a specific area of interest. This finding underscores the need for S&Es to know how to use this mechanism.

It was interesting to note that the scientists and engineers are not as aware as they could be of the technology transfer process that exist at the laboratories. Additional training in technology transfer processes and what they can do for the S&E could exploit the use of the mechanisms making technology transfer more effective.

In reviewing the selection of CRADAs, it became apparent that CRADAs do not take a simple linear route to commercialization and may only serve as one step along the route. Each partnership is unique in its process to meet its objectives. Some CRADA partnerships are a continuation of an earlier contractual partnership for the purposes of bringing a technology into the commercial sector. Some CRADAs lead to a patentable product or process bringing dollars back to the laboratory. Some CRADAs leverage R&D dollars and make small advances in a specific technological area which over time (and maybe many CRADAs later), may lead to a product or process which the DoD can access.